保存科学部,概要［英文］

著者	保存科学部
雑誌名	保存科学
号	1
ページ	7-11
発行年	1964-03-31
URL	http://id.nii.ac.jp/1440/00003191/

Department of Conservation Science

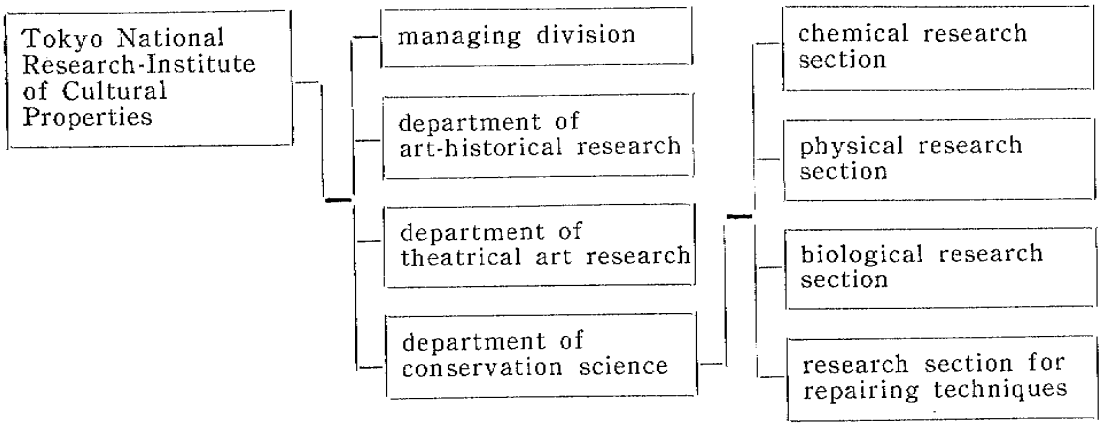
Tokyo National Research-Institute of Cultural Properties

Outline

This institute, being an auxiliary organ of National Commission for the Protection of Cultural Properties, started on April 1, 1952, for the purpose of performing investigations and researches concerning cultural properties, preparing their materials, and making reports. It consists of a managing division with three departments: the department for researches in the history of art, the department for researches in the theatrical art, and the department of scientific researches for the preservation. Prior to this, a research section for the preservation techniques was established in 1947 in the preservation and restoration division of Tokyo National Museum (later in 1952, it came to be included in the building division of the above mentioned commission) and this presumably led to the start of the scientific research department.

At first the scientific research department was consisted of three sections, chemical, physical, and biological. A new laboratory was built for this department in March, 1962, and another section of repairing techniques was supplemented from July 1 of the same year.

Construction



Staffs

Director of the institute:	Ichimatsu Tanaka
Secretary general:	Chuji Kojima
Head of the department of conservation science:	Masaru Sekino (concurrent duty)
Chemical research section	Tomokichi Iwasaki (Chief) Yoshimichi Emoto Seiji Higuchi Takeo Kadokura
Physical research section	Kenzo Toishi (Chief) Mitsuyoshi Kureya Toshiko Kenjo Rikuo Ishikawa
Biological research section	Yoshikadzu Emoto
Research section for repairing techniques	Saburo Tatsuta (Chief) Akira Mogi Toshikatsu Nakazato

Entrusted research

There is a system in which the department is entrusted with scientific and technical research works for the conservation and repairing of the cultural properties by any organizations outside. Especially, some elemental processes of repairing work of important cultural properties, for instance, settling of flaked paintings, fumigation to protect art objects from insects and fungi, consolidation and binding of archaeological excavated objects, radiography by X ray and γ ray, and so on are accepted.

Contents of investigations

Chemical research section

In this section studies of applications of synthetic resins to art objects for the purpose of conservation and repairing, also studies of antiseptics and insecticides, analytical investigation of materials used in cultural properties, research on chemical effects of air pollution on them, and so on are being carried out.

The domain of application of synthetic resins is very wide. Settling of flaked layer is performed on mural and panel paintings, building decorations,

and paintings on sliding screens and sculptures. Consolidation and binding are needed in conservation of archaeological excavated objects and parts of ruins themselves and also in repairing of sculptures, art crafts, and parts of buildings. Water repellent synthetic resins are effective for protection of stones against corrosion, and also for conservation of outside wall and roofing materials of buildings. Further, the thin film of synthetic resin applied over the surface of the metal object protects the metal against rusting.

Application of P. C. P. or P. C. P.-Na as an antiseptic or an insect preventing agent, and fumigation with methyl bromide as an insecticide avail for building materials, sculptures, documents, and almost all ingredients of a depository.

The section is also carrying out analytical research works on materials such as bronze, iron, and pigments, of every age, every excavation, and every produced province, and accumulating their data as materials serviceable for age determination of old art objects. In this country, sampling from the real art object is so strictly limited, that analysis with spectrograph or spectrophotometer is often adopted, and also the non-destructive method of X ray fluorescent analysis is usually used. These analytical data enable us, reversely, the identification of, say, traces of pigments which have been peeled off, and make the restoration possible.

On the other hand, as to air pollution, their origins are being clarified, their chemical effects on cultural properties studied, and the protective methods looked for.

Physical research section

Starting from the study on effects of the fluorescent lamp on the art objects, the section is now studying generally on the deterioration of mineral pigments and dyes, and has made a device of applying a synthetic resin film to the light source to protect museum objects from its effects. The section has applied X ray and γ ray radiographical methods to cultural properties, especially to sculptures and parts of buildings, to know their internal constructions, and to contribute to the setting up of repairing projects for them.

Basic researches on suitable temperature and humidity for the conservation of cultural properties, on the effect of severe illumination on them when taking colour- or moving-photographs, and also on a method of automatic regulation of relative humidity with a kind of gel, which can be adopted when we send our cultural properties abroad in closed packages or enclose them in closed show cases, are being studied. As to the air pollutions, investigations have been made on density distribution of the pollutions and spectral reflectance of affected metals, in concern with a real problem.

The section has also started the development of orthophotographic method which enables one to get the projectional image of an object by photography.

Biological research section

The biological research section collects insects generated in the cultural property, and also cultivate fungi taken from it, to identify them and to select chemicals against them for the purpose of real application. On the other hand, it is studying about fungi included in polluted air.

Research section for repairing techniques

In this section, scientific and technical researches are made in accordance with real problems of conservations and repairings of cultural properties. On one hand, the most effective factors are extracted from the conventional techniques, and on the other, new methods using synthetic resins and other new materials and suitable for repairings are being developed. The documents of repairings are being planned to be collected, conserved, and made service widely.

Clinical researches are often made through the entrusted research system for the purpose to make a composite study of repairing the cultural property, under cooperations with the chemical, physical, and biological sections.

Building

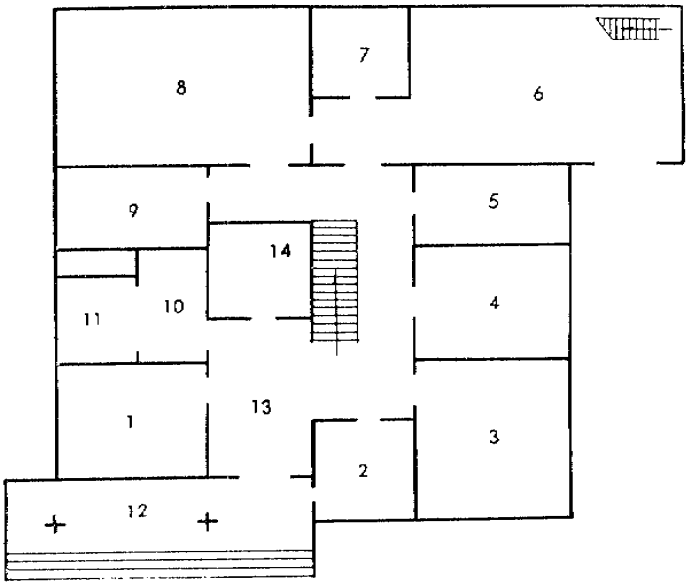
reinforced concrete two storied house　　total floor area : 662.78 m²

plan of the first floor

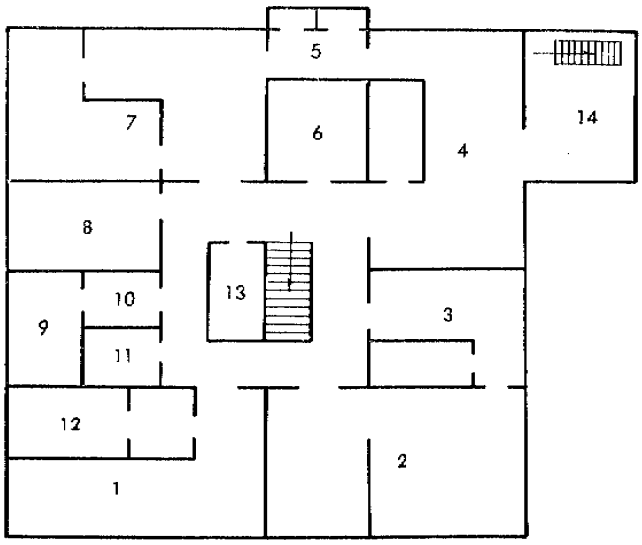
1. head's room
2. office
3. conference room
4. library
5. laboratory for repairing techniques
6. atelier
7. fumigation room
8. room for test machines
9. preparation room for repairings
10. servant's room
11. night duty room
12. porch
13. hall
14. lavatory

plan of the second floor

1. laboratory for biological research
2. laboratory for physical research
3. dark room for physical experiments
4. laboratory for chemical research
5. draft room
6. dark room for spectral experiments
7. room for analytical research
8. room for chemical research
9. photographical dark room
10. front room for 9
11. cultivation room
12. germ free room
13. balance room
14. upper part of the atelier



1st floor



2nd floor

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